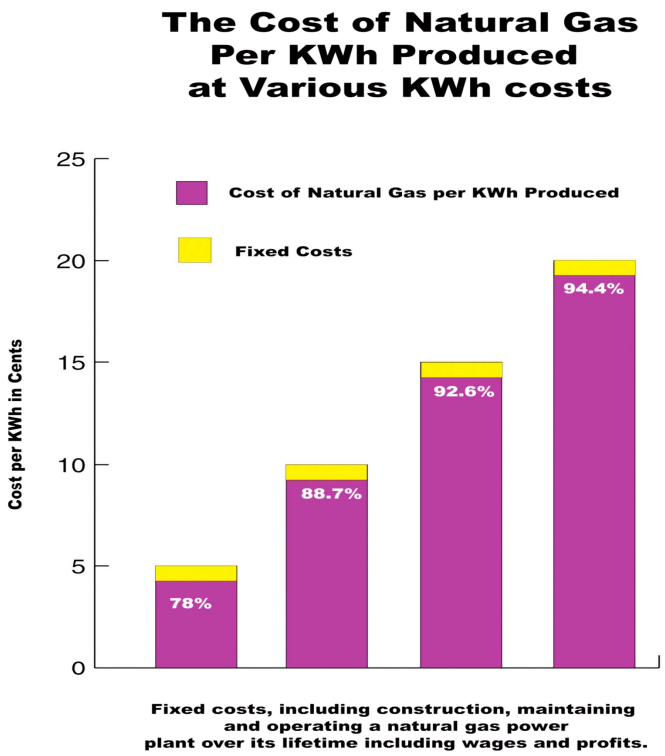
Electricity
Price and Supply Security

Reallocated Investment Strategy
For the Production/Procurement of Electricity and Elimination of Greenhouse Gas Emissions

Research Brief Submitted to the Apollo Alliance:
Jim Bell and Heather Honea, Ph.D

Resource Assessment I

When local production of electricity relies on natural gas the majority of the electricity cost is in procurement of natural gas



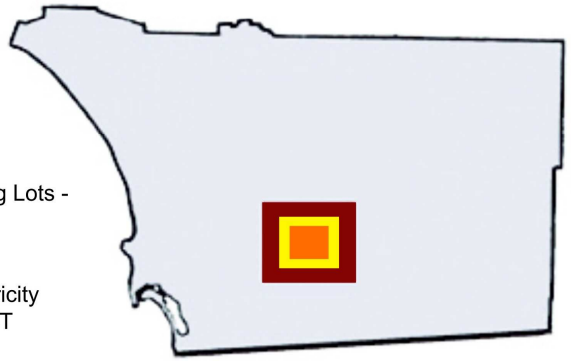
Resource Assessment II

Do we have sufficient renewable energy resources to become renewable electricity net-metered-out?

- **Leverage Solar Power an Indigenous Resource**

Electricity Net-Metered-Out San Diego County - 2050

LAND AREA PERSPECTIVE



San Diego County Area -
4,261 Square Miles

County Land Covered by Buildings and Parking Lots -
140.43 Square Miles = 3.3% of County Area

Area of Solar Panels Needed to Achieve Electricity Self-Sufficiency in San Deigo County WITHOUT Efficiency Improvements -
121 Square Miles = 34% of Rooftops & Parking Lots

Area of Solar Panels Needed to Achieve Electricity Self-Sufficiency in San Deigo County WITH 40% Efficiency Improvements -
28.82 Square Miles = 20.6% of Rooftops & Parking Lots

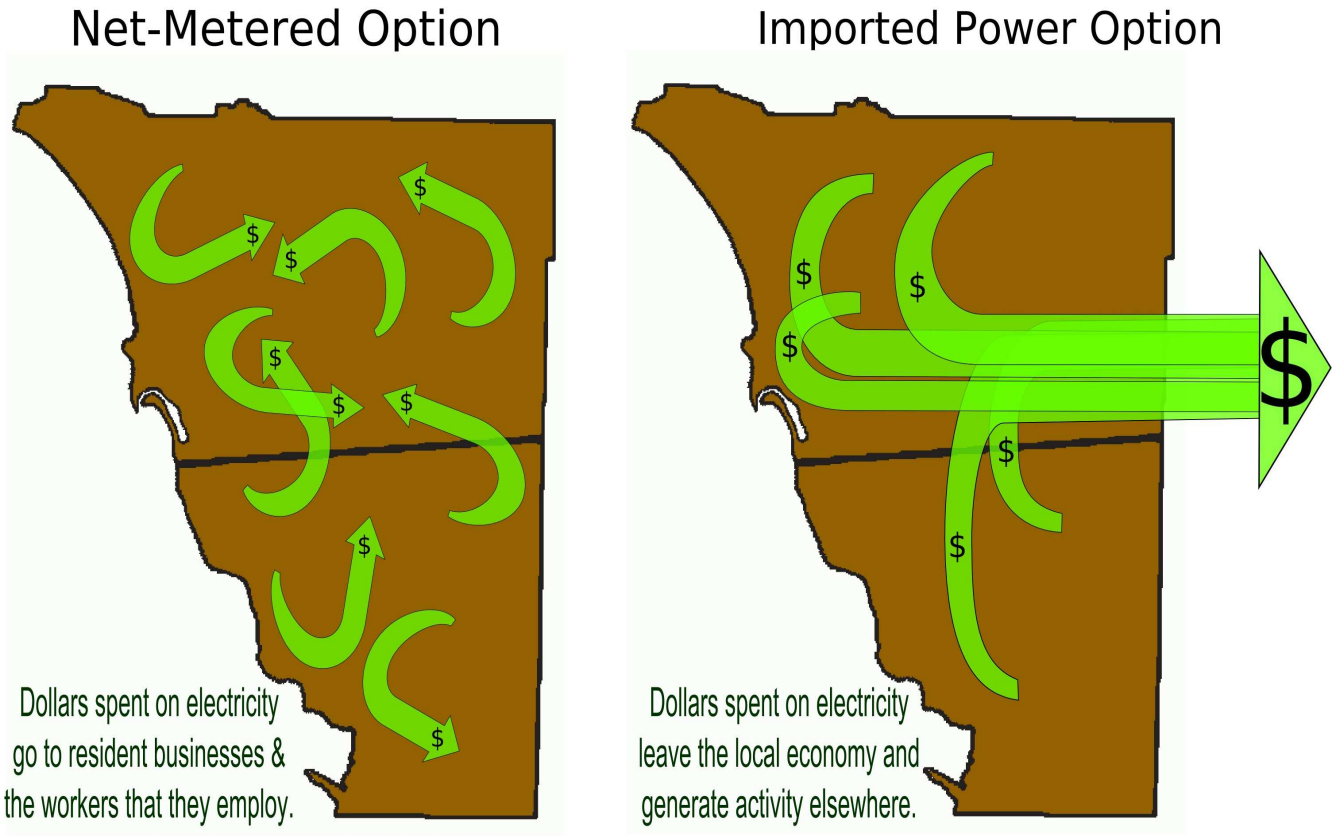
Assumptions:

+ San Diego County's population ---------- 3,915,085
+ Square Feet of Rooftops and Parking Lots per capita ---------- 1,000 ft^2
+ Total kWh use per capita per day (with 0% efficient use improvements) ---------- 15.9 kWh
+ Total kWh use per capita per day (with 40% efficient use improvements) ---------- 15.9 kWh
+ PV system efficiency ---------- 10%
+ Yearly average hours of productive sunlight per day ---------- 5 Hours

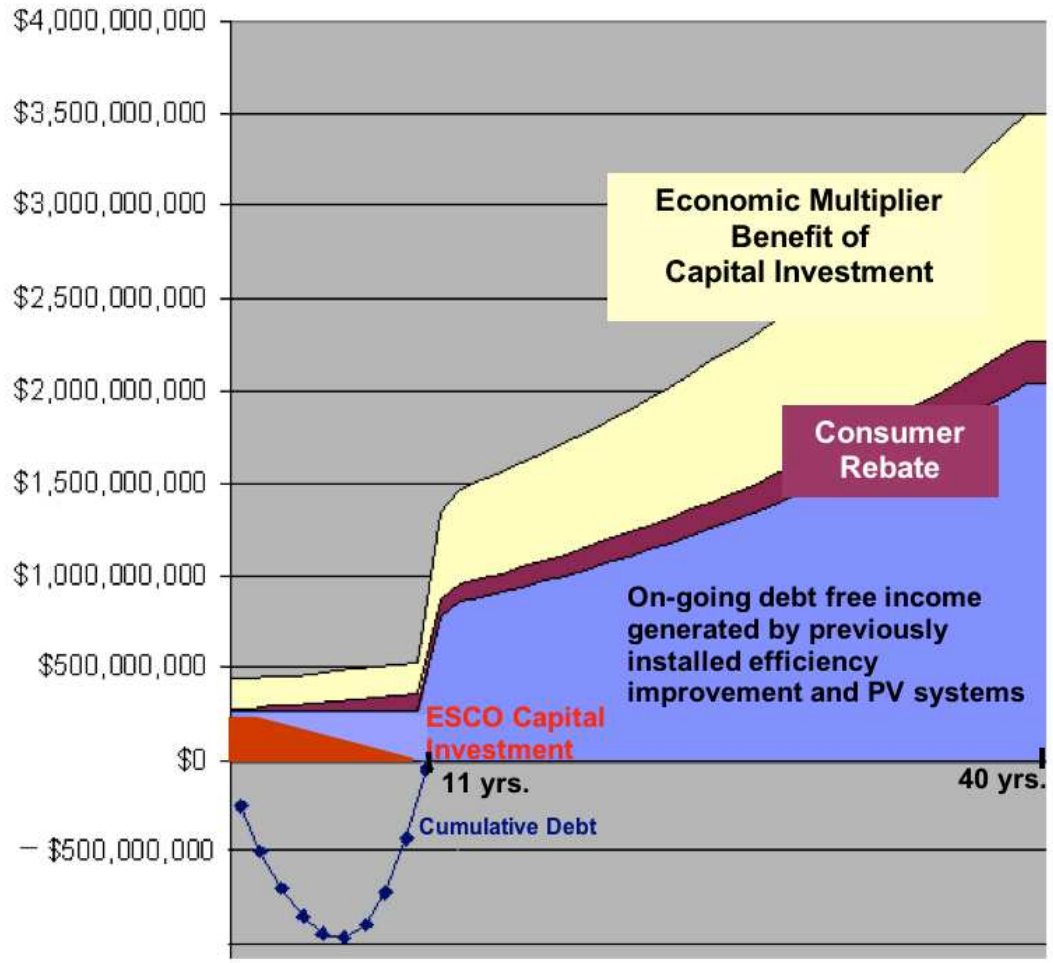
Fiscal Opportunity

Where do we get the money to make the transition to become renewable electricity net-metered-out?

- **Reallocate Expenditures: Redirect dollars spent on imported power to local generation**



Sustainable Infrastructure Development



The investor perspective

Example:

Energy Service Company secures working capital and completes efficiency retrofits and PV installations

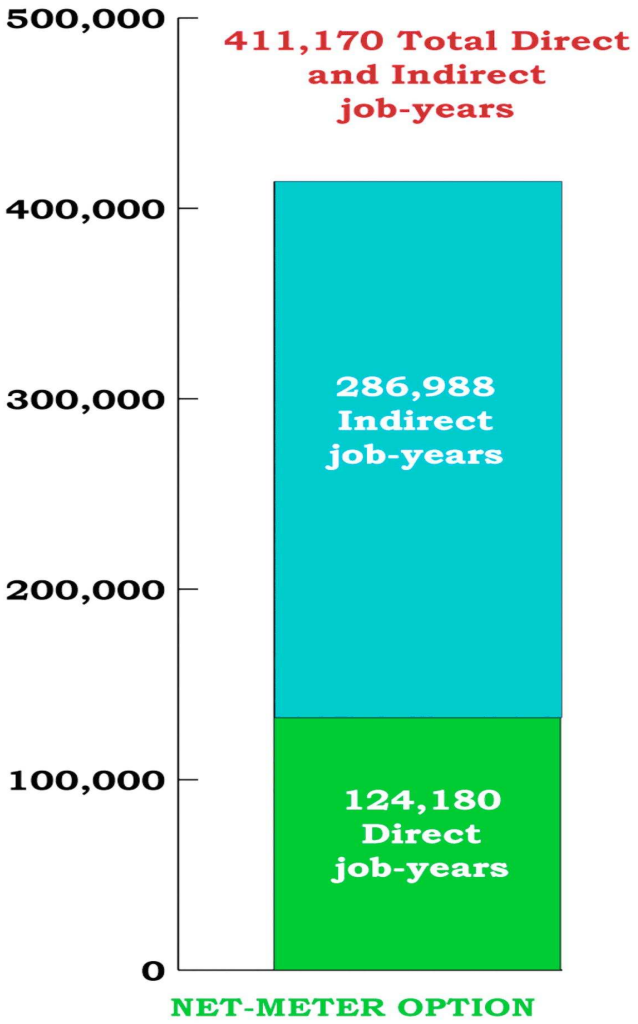
- Receives return on investment
- In 11 years working capital is paid back

The ratepayer's perspective

Example:
Ratepayer Average monthly bill for electricity assumed to be $100

- Signs up for program. (If a ratepayer is a renter, the owner of property has to sign up for the program with their tenant.
- Work with designer(s). Some improvements will be "invisible" like extra installation and duel pane windows, but changes to a building's shape like adding skylights or windows will have to be agreed upon by the owner.
- Efficiency retrofit completed. PV installed if site suitable.
- Monthly electricity bill is reduced to $90 per month.
- Cost of electricity consumed per month after efficiency retrofit - $50.
- The $40 per month surplus is used to pay off the investment in the initial project and provide a return on investment to the Energy Service Company. Once the initial investment is paid off, the $40 per month is re-invested to make other buildings more electricity use efficient and to install PV panels on roofs and over parking lots until San Diego County is renewable electricity net-metered-out on the way to becoming renewable energy self-sufficient**.**

The Community Economic Perspective



- Economic Stimulus
- Job Creation
- Self-funding infrastructure development